



به نام خدا



دانشگاه تهران  
دانشکده مهندسی برق و کامپیوتر  
درس شبکه های کامپیوتری

پروژه سوم

نام و نام خانوادگی	دانیال سعیدی (810198571) محمد قره حسنلو (810198461)
تاریخ ارسال گزارش	جمعه - 13 خرداد ۱۴۰۱

## ۱. عکس های خلاصه تست خواسته شده در صورت پروژه به ترتیب

```
^C
mylinux@ubuntu:~/Desktop/CN/CA3$ ./routing.out
topology 1-5-6 1-7-7 2-7-13 2-6-2 3-7-1 3-8-4 3-12-8 4-10-11 4-6-19 5-10-3 6-8-17 6-11-25 6-13-4 7-12-8 8-11-16 9-12-5 9-13-7 10-12-12
show
      1  2  3  4  5  6  7  8  9 10 11 12 13
1 : 0  0  0  0  6  0  7  0  0  0  0  0  0
2 : 0  0  0  0  0  2 13  0  0  0  0  0  0
3 : 0  0  0  0  0  0  1  4  0  0  0  8  0
4 : 0  0  0  0  0 19  0  0  0 11  0  0  0
5 : 6  0  0  0  0  0  0  0  0  3  0  0  0
6 : 0  2  0 19  0  0  0 17  0  0 25  0  4
7 : 7 13  1  0  0  0  0  0  0  0  0  8  0
8 : 0  0  4  0  0 17  0  0  0  0 16  0  0
9 : 0  0  0  0  0  0  0  0  0  0  5  7  0
10 : 0  0  0 11  3  0  0  0  0  0  0 12  0
11 : 0  0  0  0  0 25  0 16  0  0  0  0  0
12 : 0  0  8  0  0  0  8  0  5 12  0  0  0
13 : 0  0  0  0  0  4  0  0  7  0  0  0  0
```

Activate Windows  
Go to Settings to activate Windows.

```
Source: 1
-----
Destination: 1 Distance: 0
Path: <- 1

Destination: 2 Distance: 20
Path: 2 <- 7 <- 1

Destination: 3 Distance: 8
Path: 3 <- 7 <- 1

Destination: 4 Distance: 20
Path: 4 <- 10 <- 5 <- 1

Destination: 5 Distance: 6
Path: 5 <- 1

Destination: 6 Distance: 22
Path: 6 <- 2 <- 7 <- 1

Destination: 7 Distance: 7
Path: 7 <- 1

Destination: 8 Distance: 12
Path: 8 <- 3 <- 7 <- 1

Destination: 9 Distance: 20
Path: 9 <- 12 <- 7 <- 1

Destination: 10 Distance: 9
Path: 10 <- 5 <- 1

Destination: 11 Distance: 28
Path: 11 <- 8 <- 3 <- 7 <- 1

Destination: 12 Distance: 15
Path: 12 <- 7 <- 1

Destination: 13 Distance: 26
Path: 13 <- 6 <- 2 <- 7 <- 1
```

Iter 11 Src:9

```
-----  
Vertex    Distance from Source  
1          20  
2          13  
3          13  
4          28  
5          20  
6          11  
7          13  
8          17  
9          0  
10         17  
11         33  
12         5  
13         7
```

Final iter, Src:9

```
-----  
Destination: 1 Distance: 20  
Path: 1 <- 7 <- 12 <- 9
```

```
Destination: 2 Distance: 13  
Path: 2 <- 6 <- 13 <- 9
```

```
Destination: 3 Distance: 13  
Path: 3 <- 12 <- 9
```

```
Destination: 4 Distance: 28  
Path: 4 <- 10 <- 12 <- 9
```

```
Destination: 5 Distance: 20  
Path: 5 <- 10 <- 12 <- 9
```

```
Destination: 6 Distance: 11  
Path: 6 <- 13 <- 9
```

```
Destination: 7 Distance: 13  
Path: 7 <- 12 <- 9
```

```

tsip takes 14989750 ns
remove 4-10
show

```

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	:	0	0	0	0	6	0	7	0	0	0	0	0
2	:	0	0	0	0	0	2	13	0	0	0	0	0
3	:	0	0	0	0	0	0	1	4	0	0	8	0
4	:	0	0	0	0	0	19	0	0	0	0	0	0
5	:	6	0	0	0	0	0	0	0	3	0	0	0
6	:	0	2	0	19	0	0	0	17	0	0	25	0
7	:	7	13	1	0	0	0	0	0	0	0	8	0
8	:	0	0	4	0	0	17	0	0	0	16	0	0
9	:	0	0	0	0	0	0	0	0	0	0	5	7
10	:	0	0	0	0	3	0	0	0	0	0	12	0
11	:	0	0	0	0	0	25	0	16	0	0	0	0
12	:	0	0	8	0	0	0	8	0	5	12	0	0
13	:	0	0	0	0	0	4	0	0	7	0	0	0

```
13 : 0 0 0 0 0 4 0 0 7 0 0 0 0
```

```
dvrp
```

```
Source: 1
```

```
-----
```

```
Destination: 1 Distance: 0
```

```
Path: <- 1
```

```
Destination: 2 Distance: 20
```

```
Path: 2 <- 7 <- 1
```

```
Destination: 3 Distance: 8
```

```
Path: 3 <- 7 <- 1
```

```
Destination: 4 Distance: 41
```

```
Path: 4 <- 6 <- 2 <- 7 <- 1
```

```
Destination: 5 Distance: 6
```

```
Path: 5 <- 1
```

```
Destination: 6 Distance: 22
```

```
Path: 6 <- 2 <- 7 <- 1
```

```
Destination: 7 Distance: 7
```

```
Path: 7 <- 1
```

```
Destination: 8 Distance: 12
```

```
Path: 8 <- 3 <- 7 <- 1
```

```
Destination: 9 Distance: 20
```

```
Path: 9 <- 12 <- 7 <- 1
```

```
Destination: 10 Distance: 9
```

```
Path: 10 <- 5 <- 1
```

```
Destination: 11 Distance: 28
```

```
Path: 11 <- 8 <- 3 <- 7 <- 1
```

```
Destination: 12 Distance: 15
```

```
Path: 12 <- 7 <- 1
```

Iter 11 Src:9

```
-----  
Vertex    Distance from Source  
1          20  
2          13  
3          13  
4          30  
5          20  
6          11  
7          13  
8          17  
9          0  
10         17  
11         33  
12         5  
13         7
```

Final iter, Src:9

```
-----  
Destination: 1  Distance: 20  
Path: 1 <- 7 <- 12 <- 9
```

```
Destination: 2  Distance: 13  
Path: 2 <- 6 <- 13 <- 9
```

```
Destination: 3  Distance: 13  
Path: 3 <- 12 <- 9
```

```
Destination: 4  Distance: 30  
Path: 4 <- 6 <- 13 <- 9
```

```
Destination: 5  Distance: 20  
Path: 5 <- 10 <- 12 <- 9
```

```
Destination: 6  Distance: 11  
Path: 6 <- 13 <- 9
```

```
Destination: 7  Distance: 13  
Path: 7 <- 12 <- 9
```

## 2. عکس های خلاصه تست خواسته شده همراه با قسمتی از خروجی آنها

```
Source: 1
-----
Destination: 1 Distance: 0
Path: <- 1

Destination: 2 Distance: 20
Path: 2 <- 7 <- 1

Destination: 3 Distance: 8
Path: 3 <- 7 <- 1

Destination: 4 Distance: 20
Path: 4 <- 10 <- 5 <- 1

Destination: 5 Distance: 6
Path: 5 <- 1

Destination: 6 Distance: 22
Path: 6 <- 2 <- 7 <- 1

Destination: 7 Distance: 7
Path: 7 <- 1

Destination: 8 Distance: 12
Path: 8 <- 3 <- 7 <- 1

Destination: 9 Distance: 20
Path: 9 <- 12 <- 7 <- 1

Destination: 10 Distance: 9
Path: 10 <- 5 <- 1

Destination: 11 Distance: 28
Path: 11 <- 8 <- 3 <- 7 <- 1

Destination: 12 Distance: 15
Path: 12 <- 7 <- 1

Destination: 13 Distance: 26
Path: 13 <- 6 <- 2 <- 7 <- 1
```

- 1- dvrp
- 2- Source: 1
- 3- -----
- 4- Destination: 1 Distance: 0



5- Path: <- 1  
6-  
7- Destination: 2 Distance: 20  
8- Path: 2 <- 7 <- 1  
9-  
10- Destination: 3 Distance: 8  
11- Path: 3 <- 7 <- 1  
12-  
13- Destination: 4 Distance: 20  
14- Path: 4 <- 10 <- 5 <- 1  
15-  
16- Destination: 5 Distance: 6  
17- Path: 5 <- 1  
18-  
19- Destination: 6 Distance: 22  
20- Path: 6 <- 2 <- 7 <- 1  
21-  
22- Destination: 7 Distance: 7  
23- Path: 7 <- 1  
24-  
25- Destination: 8 Distance: 12  
26- Path: 8 <- 3 <- 7 <- 1  
27-  
28- Destination: 9 Distance: 20  
29- Path: 9 <- 12 <- 7 <- 1  
30-  
31- Destination: 10 Distance: 9  
32- Path: 10 <- 5 <- 1  
33-  
34- Destination: 11 Distance: 28  
35- Path: 11 <- 8 <- 3 <- 7 <- 1  
36-  
37- Destination: 12 Distance: 15  
38- Path: 12 <- 7 <- 1  
39-  
40- Destination: 13 Distance: 26  
41- Path: 13 <- 6 <- 2 <- 7 <- 1

42-  
 43-     **Source: 2**  
 44-     -----  
 45-     **Destination: 1   Distance: 20**  
 46-     **Path: 1 <- 7 <- 2**  
 47-  
 48-     **Destination: 2   Distance: 0**  
 49-     **Path: <- 2**  
 50-  
 51-     **Destination: 3   Distance: 14**  
 52-     **Path: 3 <- 7 <- 2**  
 53-  
 54-     **Destination: 4   Distance: 21**  
 55-     **Path: 4 <- 6 <- 2**  
 56-  
 57-     **Destination: 5   Distance: 26**  
 58-     **Path: 5 <- 1 <- 7 <- 2**  
 59-  
 60-     **Destination: 6   Distance: 2**  
 61-     **Path: 6 <- 2**  
 62-  
 63-     **Destination: 7   Distance: 13**  
 64-     **Path: 7 <- 2**  
 65-  
 66-     **Destination: 8   Distance: 18**  
 67-     **Path: 8 <- 3 <- 7 <- 2**  
 68-  
 69-     **Destination: 9   Distance: 13**  
 70-     **Path: 9 <- 13 <- 6 <- 2**  
 71-  
 72-     **Destination: 10   Distance: 29**  
 73-     **Path: 10 <- 5 <- 1 <- 7 <- 2**  
 74-  
 75-     **Destination: 11   Distance: 27**  
 76-     **Path: 11 <- 6 <- 2**  
 77-  
 78-     **Destination: 12   Distance: 18**

79- Path: 12 <- 9 <- 13 <- 6 <- 2  
 80-  
 81- Destination: 13 Distance: 6  
 82- Path: 13 <- 6 <- 2  
 83-  
 84- Source: 3  
 85- -----  
 86- Destination: 1 Distance: 8  
 87- Path: 1 <- 7 <- 3  
 88-  
 89- Destination: 2 Distance: 14  
 90- Path: 2 <- 7 <- 3  
 91-  
 92- Destination: 3 Distance: 0  
 93- Path: <- 3  
 94-  
 95- Destination: 4 Distance: 28  
 96- Path: 4 <- 10 <- 5 <- 1 <- 7 <- 3  
 97-  
 98- Destination: 5 Distance: 14  
 99- Path: 5 <- 1 <- 7 <- 3  
 100-  
 101- Destination: 6 Distance: 16  
 102- Path: 6 <- 2 <- 7 <- 3  
 103-  
 104- Destination: 7 Distance: 1  
 105- Path: 7 <- 3  
 106-  
 107- Destination: 8 Distance: 4  
 108- Path: 8 <- 3  
 109-  
 110- Destination: 9 Distance: 13  
 111- Path: 9 <- 12 <- 3  
 112-  
 113- Destination: 10 Distance: 17  
 114- Path: 10 <- 5 <- 1 <- 7 <- 3  
 115-

116- Destination: 11 Distance: 20  
 117- Path: 11 <- 8 <- 3  
 118-  
 119- Destination: 12 Distance: 8  
 120- Path: 12 <- 3  
 121-  
 122- Destination: 13 Distance: 20  
 123- Path: 13 <- 6 <- 2 <- 7 <- 3  
 124-  
 125- Source: 4  
 126- -----  
 127- Destination: 1 Distance: 20  
 128- Path: 1 <- 5 <- 10 <- 4  
 129-  
 130- Destination: 2 Distance: 21  
 131- Path: 2 <- 6 <- 4  
 132-  
 133- Destination: 3 Distance: 28  
 134- Path: 3 <- 7 <- 1 <- 5 <- 10 <- 4  
 135-  
 136- Destination: 4 Distance: 0  
 137- Path: <- 4  
 138-  
 139- Destination: 5 Distance: 14  
 140- Path: 5 <- 10 <- 4  
 141-  
 142- Destination: 6 Distance: 19  
 143- Path: 6 <- 4  
 144-  
 145- Destination: 7 Distance: 27  
 146- Path: 7 <- 1 <- 5 <- 10 <- 4  
 147-  
 148- Destination: 8 Distance: 32  
 149- Path: 8 <- 3 <- 7 <- 1 <- 5 <- 10 <- 4  
 150-  
 151- Destination: 9 Distance: 28  
 152- Path: 9 <- 12 <- 10 <- 4

153-  
 154- Destination: 10 Distance: 11  
 155- Path: 10 <- 4  
 156-  
 157- Destination: 11 Distance: 44  
 158- Path: 11 <- 6 <- 4  
 159-  
 160- Destination: 12 Distance: 23  
 161- Path: 12 <- 10 <- 4  
 162-  
 163- Destination: 13 Distance: 23  
 164- Path: 13 <- 6 <- 4  
 165-  
 166- Source: 5  
 167- -----  
 168- Destination: 1 Distance: 6  
 169- Path: 1 <- 5  
 170-  
 171- Destination: 2 Distance: 26  
 172- Path: 2 <- 7 <- 1 <- 5  
 173-  
 174- Destination: 3 Distance: 14  
 175- Path: 3 <- 7 <- 1 <- 5  
 176-  
 177- Destination: 4 Distance: 14  
 178- Path: 4 <- 10 <- 5  
 179-  
 180- Destination: 5 Distance: 0  
 181- Path: <- 5  
 182-  
 183- Destination: 6 Distance: 28  
 184- Path: 6 <- 2 <- 7 <- 1 <- 5  
 185-  
 186- Destination: 7 Distance: 13  
 187- Path: 7 <- 1 <- 5  
 188-  
 189- Destination: 8 Distance: 18

190- Path: 8 <- 3 <- 7 <- 1 <- 5  
 191-  
 192- Destination: 9 Distance: 20  
 193- Path: 9 <- 12 <- 10 <- 5  
 194-  
 195- Destination: 10 Distance: 3  
 196- Path: 10 <- 5  
 197-  
 198- Destination: 11 Distance: 34  
 199- Path: 11 <- 8 <- 3 <- 7 <- 1 <- 5  
 200-  
 201- Destination: 12 Distance: 15  
 202- Path: 12 <- 10 <- 5  
 203-  
 204- Destination: 13 Distance: 27  
 205- Path: 13 <- 9 <- 12 <- 10 <- 5  
 206-  
 207- Source: 6  
 208- -----  
 209- Destination: 1 Distance: 22  
 210- Path: 1 <- 7 <- 2 <- 6  
 211-  
 212- Destination: 2 Distance: 2  
 213- Path: 2 <- 6  
 214-  
 215- Destination: 3 Distance: 16  
 216- Path: 3 <- 7 <- 2 <- 6  
 217-  
 218- Destination: 4 Distance: 19  
 219- Path: 4 <- 6  
 220-  
 221- Destination: 5 Distance: 28  
 222- Path: 5 <- 1 <- 7 <- 2 <- 6  
 223-  
 224- Destination: 6 Distance: 0  
 225- Path: <- 6  
 226-

227- Destination: 7 Distance: 15  
 228- Path: 7 <- 2 <- 6  
 229-  
 230- Destination: 8 Distance: 17  
 231- Path: 8 <- 6  
 232-  
 233- Destination: 9 Distance: 11  
 234- Path: 9 <- 13 <- 6  
 235-  
 236- Destination: 10 Distance: 28  
 237- Path: 10 <- 12 <- 9 <- 13 <- 6  
 238-  
 239- Destination: 11 Distance: 25  
 240- Path: 11 <- 6  
 241-  
 242- Destination: 12 Distance: 16  
 243- Path: 12 <- 9 <- 13 <- 6  
 244-  
 245- Destination: 13 Distance: 4  
 246- Path: 13 <- 6  
 247-  
 248- Source: 7  
 249- -----  
 250- Destination: 1 Distance: 7  
 251- Path: 1 <- 7  
 252-  
 253- Destination: 2 Distance: 13  
 254- Path: 2 <- 7  
 255-  
 256- Destination: 3 Distance: 1  
 257- Path: 3 <- 7  
 258-  
 259- Destination: 4 Distance: 27  
 260- Path: 4 <- 10 <- 5 <- 1 <- 7  
 261-  
 262- Destination: 5 Distance: 13  
 263- Path: 5 <- 1 <- 7

264-  
 265- Destination: 6 Distance: 15  
 266- Path: 6 <- 2 <- 7  
 267-  
 268- Destination: 7 Distance: 0  
 269- Path: <- 7  
 270-  
 271- Destination: 8 Distance: 5  
 272- Path: 8 <- 3 <- 7  
 273-  
 274- Destination: 9 Distance: 13  
 275- Path: 9 <- 12 <- 7  
 276-  
 277- Destination: 10 Distance: 16  
 278- Path: 10 <- 5 <- 1 <- 7  
 279-  
 280- Destination: 11 Distance: 21  
 281- Path: 11 <- 8 <- 3 <- 7  
 282-  
 283- Destination: 12 Distance: 8  
 284- Path: 12 <- 7  
 285-  
 286- Destination: 13 Distance: 19  
 287- Path: 13 <- 6 <- 2 <- 7  
 288-  
 289- Source: 8  
 290- -----  
 291- Destination: 1 Distance: 12  
 292- Path: 1 <- 7 <- 3 <- 8  
 293-  
 294- Destination: 2 Distance: 18  
 295- Path: 2 <- 7 <- 3 <- 8  
 296-  
 297- Destination: 3 Distance: 4  
 298- Path: 3 <- 8  
 299-  
 300- Destination: 4 Distance: 32



301- Path: 4 <- 10 <- 5 <- 1 <- 7 <- 3 <- 8  
 302-  
 303- Destination: 5 Distance: 18  
 304- Path: 5 <- 1 <- 7 <- 3 <- 8  
 305-  
 306- Destination: 6 Distance: 17  
 307- Path: 6 <- 8  
 308-  
 309- Destination: 7 Distance: 5  
 310- Path: 7 <- 3 <- 8  
 311-  
 312- Destination: 8 Distance: 0  
 313- Path: <- 8  
 314-  
 315- Destination: 9 Distance: 17  
 316- Path: 9 <- 12 <- 3 <- 8  
 317-  
 318- Destination: 10 Distance: 21  
 319- Path: 10 <- 5 <- 1 <- 7 <- 3 <- 8  
 320-  
 321- Destination: 11 Distance: 16  
 322- Path: 11 <- 8  
 323-  
 324- Destination: 12 Distance: 12  
 325- Path: 12 <- 3 <- 8  
 326-  
 327- Destination: 13 Distance: 21  
 328- Path: 13 <- 6 <- 8  
 329-  
 330- Source: 9  
 331- -----  
 332- Destination: 1 Distance: 20  
 333- Path: 1 <- 7 <- 12 <- 9  
 334-  
 335- Destination: 2 Distance: 13  
 336- Path: 2 <- 6 <- 13 <- 9  
 337-

338- Destination: 3 Distance: 13  
 339- Path: 3 <- 12 <- 9  
 340-  
 341- Destination: 4 Distance: 28  
 342- Path: 4 <- 10 <- 12 <- 9  
 343-  
 344- Destination: 5 Distance: 20  
 345- Path: 5 <- 10 <- 12 <- 9  
 346-  
 347- Destination: 6 Distance: 11  
 348- Path: 6 <- 13 <- 9  
 349-  
 350- Destination: 7 Distance: 13  
 351- Path: 7 <- 12 <- 9  
 352-  
 353- Destination: 8 Distance: 17  
 354- Path: 8 <- 3 <- 12 <- 9  
 355-  
 356- Destination: 9 Distance: 0  
 357- Path: <- 9  
 358-  
 359- Destination: 10 Distance: 17  
 360- Path: 10 <- 12 <- 9  
 361-  
 362- Destination: 11 Distance: 33  
 363- Path: 11 <- 8 <- 3 <- 12 <- 9  
 364-  
 365- Destination: 12 Distance: 5  
 366- Path: 12 <- 9  
 367-  
 368- Destination: 13 Distance: 7  
 369- Path: 13 <- 9  
 370-  
 371- Source: 10  
 372- -----  
 373- Destination: 1 Distance: 9  
 374- Path: 1 <- 5 <- 10

375-  
376- Destination: 2 Distance: 29  
377- Path: 2 <- 7 <- 1 <- 5 <- 10  
378-  
379- Destination: 3 Distance: 17  
380- Path: 3 <- 7 <- 1 <- 5 <- 10  
381-  
382- Destination: 4 Distance: 11  
383- Path: 4 <- 10  
384-  
385- Destination: 5 Distance: 3  
386- Path: 5 <- 10  
387-  
388- Destination: 6 Distance: 28  
389- Path: 6 <- 13 <- 9 <- 12 <- 10  
390-  
391- Destination: 7 Distance: 16  
392- Path: 7 <- 1 <- 5 <- 10  
393-  
394- Destination: 8 Distance: 21  
395- Path: 8 <- 3 <- 7 <- 1 <- 5 <- 10  
396-  
397- Destination: 9 Distance: 17  
398- Path: 9 <- 12 <- 10  
399-  
400- Destination: 10 Distance: 0  
401- Path: <- 10  
402-  
403- Destination: 11 Distance: 37  
404- Path: 11 <- 8 <- 3 <- 7 <- 1 <- 5 <- 10  
405-  
406- Destination: 12 Distance: 12  
407- Path: 12 <- 10  
408-  
409- Destination: 13 Distance: 24  
410- Path: 13 <- 9 <- 12 <- 10  
411-

412- Source: 11  
 413- -----  
 414- Destination: 1 Distance: 28  
 415- Path: 1 <- 7 <- 3 <- 8 <- 11  
 416-  
 417- Destination: 2 Distance: 27  
 418- Path: 2 <- 6 <- 11  
 419-  
 420- Destination: 3 Distance: 20  
 421- Path: 3 <- 8 <- 11  
 422-  
 423- Destination: 4 Distance: 44  
 424- Path: 4 <- 6 <- 11  
 425-  
 426- Destination: 5 Distance: 34  
 427- Path: 5 <- 1 <- 7 <- 3 <- 8 <- 11  
 428-  
 429- Destination: 6 Distance: 25  
 430- Path: 6 <- 11  
 431-  
 432- Destination: 7 Distance: 21  
 433- Path: 7 <- 3 <- 8 <- 11  
 434-  
 435- Destination: 8 Distance: 16  
 436- Path: 8 <- 11  
 437-  
 438- Destination: 9 Distance: 33  
 439- Path: 9 <- 12 <- 3 <- 8 <- 11  
 440-  
 441- Destination: 10 Distance: 37  
 442- Path: 10 <- 5 <- 1 <- 7 <- 3 <- 8 <- 11  
 443-  
 444- Destination: 11 Distance: 0  
 445- Path: <- 11  
 446-  
 447- Destination: 12 Distance: 28  
 448- Path: 12 <- 3 <- 8 <- 11

449-  
450- Destination: 13 Distance: 29  
451- Path: 13 <- 6 <- 11  
452-  
453- Source: 12  
454- -----  
455- Destination: 1 Distance: 15  
456- Path: 1 <- 7 <- 12  
457-  
458- Destination: 2 Distance: 18  
459- Path: 2 <- 6 <- 13 <- 9 <- 12  
460-  
461- Destination: 3 Distance: 8  
462- Path: 3 <- 12  
463-  
464- Destination: 4 Distance: 23  
465- Path: 4 <- 10 <- 12  
466-  
467- Destination: 5 Distance: 15  
468- Path: 5 <- 10 <- 12  
469-  
470- Destination: 6 Distance: 16  
471- Path: 6 <- 13 <- 9 <- 12  
472-  
473- Destination: 7 Distance: 8  
474- Path: 7 <- 12  
475-  
476- Destination: 8 Distance: 12  
477- Path: 8 <- 3 <- 12  
478-  
479- Destination: 9 Distance: 5  
480- Path: 9 <- 12  
481-  
482- Destination: 10 Distance: 12  
483- Path: 10 <- 12  
484-  
485- Destination: 11 Distance: 28

486- Path: 11 <- 8 <- 3 <- 12  
 487-  
 488- Destination: 12 Distance: 0  
 489- Path: <- 12  
 490-  
 491- Destination: 13 Distance: 12  
 492- Path: 13 <- 9 <- 12  
 493-  
 494- Source: 13  
 495- -----  
 496- Destination: 1 Distance: 26  
 497- Path: 1 <- 7 <- 2 <- 6 <- 13  
 498-  
 499- Destination: 2 Distance: 6  
 500- Path: 2 <- 6 <- 13  
 501-  
 502- Destination: 3 Distance: 20  
 503- Path: 3 <- 12 <- 9 <- 13  
 504-  
 505- Destination: 4 Distance: 23  
 506- Path: 4 <- 6 <- 13  
 507-  
 508- Destination: 5 Distance: 27  
 509- Path: 5 <- 10 <- 12 <- 9 <- 13  
 510-  
 511- Destination: 6 Distance: 4  
 512- Path: 6 <- 13  
 513-  
 514- Destination: 7 Distance: 19  
 515- Path: 7 <- 2 <- 6 <- 13  
 516-  
 517- Destination: 8 Distance: 21  
 518- Path: 8 <- 6 <- 13  
 519-  
 520- Destination: 9 Distance: 7  
 521- Path: 9 <- 13  
 522-

523- Destination: 10 Distance: 24  
524- Path: 10 <- 12 <- 9 <- 13  
525-  
526- Destination: 11 Distance: 29  
527- Path: 11 <- 6 <- 13  
528-  
529- Destination: 12 Distance: 12  
530- Path: 12 <- 9 <- 13  
531-  
532- Destination: 13 Distance: 0  
533- Path: <- 13  
534-  
dvrp takes 2146841 ns

```

Iter 11 Src:9
-----
Vertex    Distance from Source
1          20
2          13
3          13
4          28
5          20
6          11
7          13
8          17
9          0
10         17
11         33
12         5
13         7

```

```

Final iter, Src:9
-----
Destination: 1  Distance: 20
Path: 1 <- 7 <- 12 <- 9

Destination: 2  Distance: 13
Path: 2 <- 6 <- 13 <- 9

Destination: 3  Distance: 13
Path: 3 <- 12 <- 9

Destination: 4  Distance: 28
Path: 4 <- 10 <- 12 <- 9

Destination: 5  Distance: 20
Path: 5 <- 10 <- 12 <- 9

Destination: 6  Distance: 11
Path: 6 <- 13 <- 9

Destination: 7  Distance: 13
Path: 7 <- 12 <- 9

```

535- Destination: 1 Distance: 20

536- Path: 1 <- 7 <- 12 <- 9

537-

538- Destination: 2 Distance: 13

539- Path: 2 <- 6 <- 13 <- 9

540-

541- Destination: 3 Distance: 13

542- Path: 3 <- 12 <- 9

543-



544- Destination: 4 Distance: 28  
 545- Path: 4 <- 10 <- 12 <- 9  
 546-  
 547- Destination: 5 Distance: 20  
 548- Path: 5 <- 10 <- 12 <- 9  
 549-  
 550- Destination: 6 Distance: 11  
 551- Path: 6 <- 13 <- 9  
 552-  
 553- Destination: 7 Distance: 13  
 554- Path: 7 <- 12 <- 9  
 555-  
 556- Destination: 8 Distance: 17  
 557- Path: 8 <- 3 <- 12 <- 9  
 558-  
 559- Destination: 9 Distance: 0  
 560- Path: <- 9  
 561-  
 562- Destination: 10 Distance: 17  
 563- Path: 10 <- 12 <- 9  
 564-  
 565- Destination: 11 Distance: 33  
 566- Path: 11 <- 8 <- 3 <- 12 <- 9  
 567-  
 568- Destination: 12 Distance: 5  
 569- Path: 12 <- 9  
 570-  
 571- Destination: 13 Distance: 7  
 572- Path: 13 <- 9  
 573-  
 574- Iter 0 Src:10  
 575- -----  
 576- Vertex Distance from Source  
 577- 1 99999  
 578- 2 99999  
 579- 3 99999  
 580- 4 11

```

581- 5      3
582- 6      99999
583- 7      99999
584- 8      99999
585- 9      99999
586- 10     0
587- 11     99999
588- 12     12
589- 13     99999
590-
591- Iter 1 Src:10
592- -----
593- Vertex  Distance from Source
594- 1      9
595- 2      99999
596- 3      99999
597- 4      11
598- 5      3
599- 6      99999
600- 7      99999
601- 8      99999
602- 9      99999
603- 10     0
604- 11     99999
605- 12     12
606- 13     99999
607-
608- Iter 2 Src:10
609- -----
610- Vertex  Distance from Source
611- 1      9
612- 2      99999
613- 3      99999
614- 4      11
615- 5      3
616- 6      99999
617- 7      16

```

618-	8	99999
619-	9	99999
620-	10	0
621-	11	99999
622-	12	12
623-	13	99999
624-		
625-	Iter 3 Src:10	
626-	-----	
627-	Vertex	Distance from Source
628-	1	9
629-	2	99999
630-	3	99999
631-	4	11
632-	5	3
633-	6	30
634-	7	16
635-	8	99999
636-	9	99999
637-	10	0
638-	11	99999
639-	12	12
640-	13	99999
641-		
642-	Iter 4 Src:10	
643-	-----	
644-	Vertex	Distance from Source
645-	1	9
646-	2	99999
647-	3	20
648-	4	11
649-	5	3
650-	6	30
651-	7	16
652-	8	99999
653-	9	17
654-	10	0

```

655- 11      99999
656- 12      12
657- 13      99999
658-
659- Iter 5 Src:10
660- -----
661- Vertex  Distance from Source
662- 1        9
663- 2       29
664- 3       17
665- 4       11
666- 5        3
667- 6       30
668- 7       16
669- 8      99999
670- 9       17
671- 10       0
672- 11      99999
673- 12       12
674- 13      99999
675-
676- Iter 6 Src:10
677- -----
678- Vertex  Distance from Source
679- 1        9
680- 2       29
681- 3       17
682- 4       11
683- 5        3
684- 6       30
685- 7       16
686- 8      99999
687- 9       17
688- 10       0
689- 11      99999
690- 12       12
691- 13      24

```

```

692-
693-  Iter 7 Src:10
694-  -----
695-  Vertex  Distance from Source
696-  1        9
697-  2       29
698-  3       17
699-  4       11
700-  5        3
701-  6       30
702-  7       16
703-  8       21
704-  9       17
705- 10        0
706- 11     99999
707- 12       12
708- 13       24
709-
710-  Iter 8 Src:10
711-  -----
712-  Vertex  Distance from Source
713-  1        9
714-  2       29
715-  3       17
716-  4       11
717-  5        3
718-  6       30
719-  7       16
720-  8       21
721-  9       17
722- 10        0
723- 11       37
724- 12       12
725- 13       24
726-
727-  Iter 9 Src:10
728-  -----

```

	Vertex	Distance from Source
729-		
730-	1	9
731-	2	29
732-	3	17
733-	4	11
734-	5	3
735-	6	28
736-	7	16
737-	8	21
738-	9	17
739-	10	0
740-	11	37
741-	12	12
742-	13	24

743-

744- Iter 10 Src:10

745- -----

	Vertex	Distance from Source
747-	1	9
748-	2	29
749-	3	17
750-	4	11
751-	5	3
752-	6	28
753-	7	16
754-	8	21
755-	9	17
756-	10	0
757-	11	37
758-	12	12
759-	13	24

760-

761- Iter 11 Src:10

762- -----

	Vertex	Distance from Source
763-		
764-	1	9
765-	2	29

```

766- 3      17
767- 4      11
768- 5      3
769- 6      28
770- 7      16
771- 8      21
772- 9      17
773- 10     0
774- 11     37
775- 12     12
776- 13     24
777-
778- Final iter, Src:10
779- -----
780- Destination: 1 Distance: 9
781- Path: 1 <- 5 <- 10
782-
783- Destination: 2 Distance: 29
784- Path: 2 <- 7 <- 1 <- 5 <- 10
785-
786- Destination: 3 Distance: 17
787- Path: 3 <- 7 <- 1 <- 5 <- 10
788-
789- Destination: 4 Distance: 11
790- Path: 4 <- 10
791-
792- Destination: 5 Distance: 3
793- Path: 5 <- 10
794-
795- Destination: 6 Distance: 28
796- Path: 6 <- 13 <- 9 <- 12 <- 10
797-
798- Destination: 7 Distance: 16
799- Path: 7 <- 1 <- 5 <- 10
800-
801- Destination: 8 Distance: 21
802- Path: 8 <- 3 <- 7 <- 1 <- 5 <- 10

```

```

803-
804- Destination: 9 Distance: 17
805- Path: 9 <- 12 <- 10
806-
807- Destination: 10 Distance: 0
808- Path: <- 10
809-
810- Destination: 11 Distance: 37
811- Path: 11 <- 8 <- 3 <- 7 <- 1 <- 5 <- 10
812-
813- Destination: 12 Distance: 12
814- Path: 12 <- 10
815-
816- Destination: 13 Distance: 24
817- Path: 13 <- 9 <- 12 <- 10
818-
819- Iter 0 Src:11
820- -----
821- Vertex Distance from Source
822- 1          99999
823- 2          99999
824- 3          99999
825- 4          99999
826- 5          99999
827- 6          25
828- 7          99999
829- 8          16
830- 9          99999
831- 10         99999
832- 11         0
833- 12         99999
834- 13         99999
835-
836- Iter 1 Src:11
837- -----
838- Vertex Distance from Source
839- 1          99999

```



840-	2	99999
841-	3	20
842-	4	99999
843-	5	99999
844-	6	25
845-	7	99999
846-	8	16
847-	9	99999
848-	10	99999
849-	11	0
850-	12	99999
851-	13	99999
852-		
853-	Iter 2 Src:11	
854-	-----	
855-	Vertex	Distance from Source
856-	1	99999
857-	2	99999
858-	3	20
859-	4	99999
860-	5	99999
861-	6	25
862-	7	21
863-	8	16
864-	9	99999
865-	10	99999
866-	11	0
867-	12	28
868-	13	99999
869-		
870-	Iter 3 Src:11	
871-	-----	
872-	Vertex	Distance from Source
873-	1	28
874-	2	34
875-	3	20
876-	4	99999

```

877- 5          99999
878- 6          25
879- 7          21
880- 8          16
881- 9          99999
882- 10         99999
883- 11         0
884- 12         28
885- 13         99999
886-
887- Iter 4 Src:11
888- -----
889- Vertex  Distance from Source
890- 1          28
891- 2          27
892- 3          20
893- 4          44
894- 5          99999
895- 6          25
896- 7          21
897- 8          16
898- 9          99999
899- 10         99999
900- 11         0
901- 12         28
902- 13         29
903-
904- Iter 5 Src:11
905- -----
906- Vertex  Distance from Source
907- 1          28
908- 2          27
909- 3          20
910- 4          44
911- 5          99999
912- 6          25
913- 7          21

```

914-	8	16
915-	9	99999
916-	10	99999
917-	11	0
918-	12	28
919-	13	29
920-		
921-	Iter 6 Src:11	
922-	-----	
923-	Vertex	Distance from Source
924-	1	28
925-	2	27
926-	3	20
927-	4	44
928-	5	99999
929-	6	25
930-	7	21
931-	8	16
932-	9	33
933-	10	40
934-	11	0
935-	12	28
936-	13	29
937-		
938-	Iter 7 Src:11	
939-	-----	
940-	Vertex	Distance from Source
941-	1	28
942-	2	27
943-	3	20
944-	4	44
945-	5	34
946-	6	25
947-	7	21
948-	8	16
949-	9	33
950-	10	40

```

951- 11      0
952- 12     28
953- 13     29
954-
955- Iter 8 Src:11
956- -----
957- Vertex  Distance from Source
958- 1       28
959- 2       27
960- 3       20
961- 4       44
962- 5       34
963- 6       25
964- 7       21
965- 8       16
966- 9       33
967- 10      40
968- 11      0
969- 12      28
970- 13      29
971-
972- Iter 9 Src:11
973- -----
974- Vertex  Distance from Source
975- 1       28
976- 2       27
977- 3       20
978- 4       44
979- 5       34
980- 6       25
981- 7       21
982- 8       16
983- 9       33
984- 10      40
985- 11      0
986- 12      28
987- 13      29

```

```

988-
989-  Iter 10 Src:11
990-  -----
991-  Vertex  Distance from Source
992-  1        28
993-  2        27
994-  3        20
995-  4        44
996-  5        34
997-  6        25
998-  7        21
999-  8        16
1000- 9        33
1001-10       37
1002-11       0
1003-12       28
1004-13       29
1005-
1006- Iter 11 Src:11
1007-  -----
1008-  Vertex  Distance from Source
1009-  1        28
1010-  2        27
1011-  3        20
1012-  4        44
1013-  5        34
1014-  6        25
1015-  7        21
1016-  8        16
1017-  9        33
1018- 10       37
1019- 11       0
1020- 12       28
1021- 13       29
1022-
1023- Final iter, Src:11
1024-  -----

```

1025- Destination: 1 Distance: 28  
1026- Path: 1 <- 7 <- 3 <- 8 <- 11  
1027-  
1028- Destination: 2 Distance: 27  
1029- Path: 2 <- 6 <- 11  
1030-  
1031- Destination: 3 Distance: 20  
1032- Path: 3 <- 8 <- 11  
1033-  
1034- Destination: 4 Distance: 44  
1035- Path: 4 <- 6 <- 11  
1036-  
1037- Destination: 5 Distance: 34  
1038- Path: 5 <- 1 <- 7 <- 3 <- 8 <- 11  
1039-  
1040- Destination: 6 Distance: 25  
1041- Path: 6 <- 11  
1042-  
1043- Destination: 7 Distance: 21  
1044- Path: 7 <- 3 <- 8 <- 11  
1045-  
1046- Destination: 8 Distance: 16  
1047- Path: 8 <- 11  
1048-  
1049- Destination: 9 Distance: 33  
1050- Path: 9 <- 12 <- 3 <- 8 <- 11  
1051-  
1052- Destination: 10 Distance: 37  
1053- Path: 10 <- 5 <- 1 <- 7 <- 3 <- 8 <- 11  
1054-  
1055- Destination: 11 Distance: 0  
1056- Path: <- 11  
1057-  
1058- Destination: 12 Distance: 28  
1059- Path: 12 <- 3 <- 8 <- 11  
1060-  
1061- Destination: 13 Distance: 29

```

1062- Path: 13 <- 6 <- 11
1063-
1064- Iter 0 Src:12
1065- -----
1066- Vertex  Distance from Source
1067- 1          99999
1068- 2          99999
1069- 3           8
1070- 4          99999
1071- 5          99999
1072- 6          99999
1073- 7           8
1074- 8          99999
1075- 9           5
1076- 10         12
1077- 11         99999
1078- 12          0
1079- 13         99999
1080-
1081- Iter 1 Src:12
1082- -----
1083- Vertex  Distance from Source
1084- 1          99999
1085- 2          99999
1086- 3           8
1087- 4          99999
1088- 5          99999
1089- 6          99999
1090- 7           8
1091- 8          99999
1092- 9           5
1093- 10         12
1094- 11         99999
1095- 12          0
1096- 13         12
1097-
1098- Iter 2 Src:12

```

```

1099- -----
1100- Vertex Distance from Source
1101- 1      15
1102- 2      21
1103- 3      8
1104- 4      99999
1105- 5      99999
1106- 6      99999
1107- 7      8
1108- 8      99999
1109- 9      5
1110- 10     12
1111- 11     99999
1112- 12     0
1113- 13     12
1114-
1115- Iter 3 Src:12
1116- -----
1117- Vertex Distance from Source
1118- 1      15
1119- 2      21
1120- 3      8
1121- 4      99999
1122- 5      99999
1123- 6      99999
1124- 7      8
1125- 8      12
1126- 9      5
1127- 10     12
1128- 11     99999
1129- 12     0
1130- 13     12
1131-
1132- Iter 4 Src:12
1133- -----
1134- Vertex Distance from Source
1135- 1      15

```



1136-	2	21
1137-	3	8
1138-	4	99999
1139-	5	99999
1140-	6	16
1141-	7	8
1142-	8	12
1143-	9	5
1144-	10	12
1145-	11	99999
1146-	12	0
1147-	13	12
1148-		
1149-	Iter 5 Src:12	
1150-	-----	
1151-	Vertex	Distance from Source
1152-	1	15
1153-	2	21
1154-	3	8
1155-	4	23
1156-	5	15
1157-	6	16
1158-	7	8
1159-	8	12
1160-	9	5
1161-	10	12
1162-	11	99999
1163-	12	0
1164-	13	12
1165-		
1166-	Iter 6 Src:12	
1167-	-----	
1168-	Vertex	Distance from Source
1169-	1	15
1170-	2	21
1171-	3	8
1172-	4	23

1173-	5	15
1174-	6	16
1175-	7	8
1176-	8	12
1177-	9	5
1178-	10	12
1179-	11	28
1180-	12	0
1181-	13	12
1182-		
1183-	Iter 7 Src:12	
1184-	-----	
1185-	Vertex	Distance from Source
1186-	1	15
1187-	2	21
1188-	3	8
1189-	4	23
1190-	5	15
1191-	6	16
1192-	7	8
1193-	8	12
1194-	9	5
1195-	10	12
1196-	11	28
1197-	12	0
1198-	13	12
1199-		
1200-	Iter 8 Src:12	
1201-	-----	
1202-	Vertex	Distance from Source
1203-	1	15
1204-	2	21
1205-	3	8
1206-	4	23
1207-	5	15
1208-	6	16
1209-	7	8

```

1210- 8      12
1211- 9      5
1212- 10     12
1213- 11     28
1214- 12      0
1215- 13     12
1216-
1217- Iter 9 Src:12
1218- -----
1219- Vertex  Distance from Source
1220- 1      15
1221- 2      18
1222- 3      8
1223- 4      23
1224- 5      15
1225- 6      16
1226- 7      8
1227- 8      12
1228- 9      5
1229- 10     12
1230- 11     28
1231- 12      0
1232- 13     12
1233-
1234- Iter 10 Src:12
1235- -----
1236- Vertex  Distance from Source
1237- 1      15
1238- 2      18
1239- 3      8
1240- 4      23
1241- 5      15
1242- 6      16
1243- 7      8
1244- 8      12
1245- 9      5
1246- 10     12

```

```

1247- 11      28
1248- 12      0
1249- 13      12
1250-
1251- Iter 11 Src:12
1252- -----
1253- Vertex  Distance from Source
1254- 1      15
1255- 2      18
1256- 3      8
1257- 4      23
1258- 5      15
1259- 6      16
1260- 7      8
1261- 8      12
1262- 9      5
1263- 10     12
1264- 11     28
1265- 12     0
1266- 13     12
1267-
1268- Final iter, Src:12
1269- -----
1270- Destination: 1 Distance: 15
1271- Path: 1 <- 7 <- 12
1272-
1273- Destination: 2 Distance: 18
1274- Path: 2 <- 6 <- 13 <- 9 <- 12
1275-
1276- Destination: 3 Distance: 8
1277- Path: 3 <- 12
1278-
1279- Destination: 4 Distance: 23
1280- Path: 4 <- 10 <- 12
1281-
1282- Destination: 5 Distance: 15
1283- Path: 5 <- 10 <- 12

```

1284-  
 1285- Destination: 6 Distance: 16  
 1286- Path: 6 <- 13 <- 9 <- 12  
 1287-  
 1288- Destination: 7 Distance: 8  
 1289- Path: 7 <- 12  
 1290-  
 1291- Destination: 8 Distance: 12  
 1292- Path: 8 <- 3 <- 12  
 1293-  
 1294- Destination: 9 Distance: 5  
 1295- Path: 9 <- 12  
 1296-  
 1297- Destination: 10 Distance: 12  
 1298- Path: 10 <- 12  
 1299-  
 1300- Destination: 11 Distance: 28  
 1301- Path: 11 <- 8 <- 3 <- 12  
 1302-  
 1303- Destination: 12 Distance: 0  
 1304- Path: <- 12  
 1305-  
 1306- Destination: 13 Distance: 12  
 1307- Path: 13 <- 9 <- 12  
 1308-  
 1309- Iter 0 Src:13  
 1310- -----  
 1311- Vertex Distance from Source  
 1312- 1 99999  
 1313- 2 99999  
 1314- 3 99999  
 1315- 4 99999  
 1316- 5 99999  
 1317- 6 4  
 1318- 7 99999  
 1319- 8 99999  
 1320- 9 7

```

1321- 10      99999
1322- 11      99999
1323- 12      99999
1324- 13      0
1325-
1326- Iter 1 Src:13
1327- -----
1328- Vertex  Distance from Source
1329- 1      99999
1330- 2      6
1331- 3      99999
1332- 4      23
1333- 5      99999
1334- 6      4
1335- 7      99999
1336- 8      21
1337- 9      7
1338- 10     99999
1339- 11     29
1340- 12     99999
1341- 13     0
1342-
1343- Iter 2 Src:13
1344- -----
1345- Vertex  Distance from Source
1346- 1      99999
1347- 2      6
1348- 3      99999
1349- 4      23
1350- 5      99999
1351- 6      4
1352- 7      19
1353- 8      21
1354- 9      7
1355- 10     99999
1356- 11     29
1357- 12     99999

```

```

1358- 13      0
1359-
1360- Iter 3 Src:13
1361- -----
1362- Vertex  Distance from Source
1363- 1      99999
1364- 2      6
1365- 3      99999
1366- 4      23
1367- 5      99999
1368- 6      4
1369- 7      19
1370- 8      21
1371- 9      7
1372- 10     99999
1373- 11     29
1374- 12     12
1375- 13      0
1376-
1377- Iter 4 Src:13
1378- -----
1379- Vertex  Distance from Source
1380- 1      99999
1381- 2      6
1382- 3      20
1383- 4      23
1384- 5      99999
1385- 6      4
1386- 7      19
1387- 8      21
1388- 9      7
1389- 10     24
1390- 11     29
1391- 12     12
1392- 13      0
1393-
1394- Iter 5 Src:13

```

```

1395- -----
1396- Vertex  Distance from Source
1397- 1          26
1398- 2          6
1399- 3          20
1400- 4          23
1401- 5          99999
1402- 6          4
1403- 7          19
1404- 8          21
1405- 9          7
1406- 10         24
1407- 11         29
1408- 12         12
1409- 13         0
1410-
1411- Iter 6 Src:13
1412- -----
1413- Vertex  Distance from Source
1414- 1          26
1415- 2          6
1416- 3          20
1417- 4          23
1418- 5          99999
1419- 6          4
1420- 7          19
1421- 8          21
1422- 9          7
1423- 10         24
1424- 11         29
1425- 12         12
1426- 13         0
1427-
1428- Iter 7 Src:13
1429- -----
1430- Vertex  Distance from Source
1431- 1          26

```



1432-	2	6
1433-	3	20
1434-	4	23
1435-	5	99999
1436-	6	4
1437-	7	19
1438-	8	21
1439-	9	7
1440-	10	24
1441-	11	29
1442-	12	12
1443-	13	0
1444-		
1445-	Iter 8 Src:13	
1446-	-----	
1447-	Vertex	Distance from Source
1448-	1	26
1449-	2	6
1450-	3	20
1451-	4	23
1452-	5	99999
1453-	6	4
1454-	7	19
1455-	8	21
1456-	9	7
1457-	10	24
1458-	11	29
1459-	12	12
1460-	13	0
1461-		
1462-	Iter 9 Src:13	
1463-	-----	
1464-	Vertex	Distance from Source
1465-	1	26
1466-	2	6
1467-	3	20
1468-	4	23

1469-	5	27
1470-	6	4
1471-	7	19
1472-	8	21
1473-	9	7
1474-	10	24
1475-	11	29
1476-	12	12
1477-	13	0
1478-		
1479-	Iter 10 Src:13	
1480-	-----	
1481-	Vertex	Distance from Source
1482-	1	26
1483-	2	6
1484-	3	20
1485-	4	23
1486-	5	27
1487-	6	4
1488-	7	19
1489-	8	21
1490-	9	7
1491-	10	24
1492-	11	29
1493-	12	12
1494-	13	0
1495-		
1496-	Iter 11 Src:13	
1497-	-----	
1498-	Vertex	Distance from Source
1499-	1	26
1500-	2	6
1501-	3	20
1502-	4	23
1503-	5	27
1504-	6	4
1505-	7	19

1506- 8            21  
 1507- 9            7  
 1508- 10           24  
 1509- 11           29  
 1510- 12           12  
 1511- 13           0  
 1512-  
 1513- Final iter, Src:13  
 1514- -----  
 1515- Destination: 1 Distance: 26  
 1516- Path: 1 <- 7 <- 2 <- 6 <- 13  
 1517-  
 1518- Destination: 2 Distance: 6  
 1519- Path: 2 <- 6 <- 13  
 1520-  
 1521- Destination: 3 Distance: 20  
 1522- Path: 3 <- 12 <- 9 <- 13  
 1523-  
 1524- Destination: 4 Distance: 23  
 1525- Path: 4 <- 6 <- 13  
 1526-  
 1527- Destination: 5 Distance: 27  
 1528- Path: 5 <- 10 <- 12 <- 9 <- 13  
 1529-  
 1530- Destination: 6 Distance: 4  
 1531- Path: 6 <- 13  
 1532-  
 1533- Destination: 7 Distance: 19  
 1534- Path: 7 <- 2 <- 6 <- 13  
 1535-  
 1536- Destination: 8 Distance: 21  
 1537- Path: 8 <- 6 <- 13  
 1538-  
 1539- Destination: 9 Distance: 7  
 1540- Path: 9 <- 13  
 1541-  
 1542- Destination: 10 Distance: 24

1543- Path: 10 <- 12 <- 9 <- 13  
 1544-  
 1545- Destination: 11 Distance: 29  
 1546- Path: 11 <- 6 <- 13  
 1547-  
 1548- Destination: 12 Distance: 12  
 1549- Path: 12 <- 9 <- 13  
 1550-  
 1551- Destination: 13 Distance: 0  
 1552- Path: <- 13  
 1553-  
 Isrp takes 14989750 ns

```

lsrp takes 14989750 ns
remove 4-10
show
  1  2  3  4  5  6  7  8  9 10 11 12 13
1 : 0  0  0  0  6  0  7  0  0  0  0  0  0
2 : 0  0  0  0  0  2 13  0  0  0  0  0  0
3 : 0  0  0  0  0  0  1  4  0  0  0  8  0
4 : 0  0  0  0  0 19  0  0  0  0  0  0  0
5 : 6  0  0  0  0  0  0  0  0  3  0  0  0
6 : 0  2  0 19  0  0  0 17  0  0 25  0  4
7 : 7 13  1  0  0  0  0  0  0  0  0  8  0
8 : 0  0  4  0  0 17  0  0  0  0 16  0  0
9 : 0  0  0  0  0  0  0  0  0  0  0  5  7
10 : 0  0  0  0  3  0  0  0  0  0  0 12  0
11 : 0  0  0  0  0 25  0 16  0  0  0  0  0
12 : 0  0  8  0  0  0  8  0  5 12  0  0  0
13 : 0  0  0  0  0  4  0  0  7  0  0  0  0
  
```

```

13 : 0 0 0 0 0 4 0 0 7 0 0 0 0
dvrp
Source: 1
-----
Destination: 1 Distance: 0
Path: <- 1

Destination: 2 Distance: 20
Path: 2 <- 7 <- 1

Destination: 3 Distance: 8
Path: 3 <- 7 <- 1

Destination: 4 Distance: 41
Path: 4 <- 6 <- 2 <- 7 <- 1

Destination: 5 Distance: 6
Path: 5 <- 1

Destination: 6 Distance: 22
Path: 6 <- 2 <- 7 <- 1

Destination: 7 Distance: 7
Path: 7 <- 1

Destination: 8 Distance: 12
Path: 8 <- 3 <- 7 <- 1

Destination: 9 Distance: 20
Path: 9 <- 12 <- 7 <- 1

Destination: 10 Distance: 9
Path: 10 <- 5 <- 1

Destination: 11 Distance: 28
Path: 11 <- 8 <- 3 <- 7 <- 1

Destination: 12 Distance: 15
Path: 12 <- 7 <- 1

```

1554- dvrp

1555- Source: 1

1556- -----

1557- Destination: 1 Distance: 0

1558- Path: <- 1

1559-

1560- Destination: 2 Distance: 20

1561- Path: 2 <- 7 <- 1

1562-

1563- Destination: 3 Distance: 8

1564- Path: 3 <- 7 <- 1  
 1565-  
 1566- Destination: 4 Distance: 41  
 1567- Path: 4 <- 6 <- 2 <- 7 <- 1  
 1568-  
 1569- Destination: 5 Distance: 6  
 1570- Path: 5 <- 1  
 1571-  
 1572- Destination: 6 Distance: 22  
 1573- Path: 6 <- 2 <- 7 <- 1  
 1574-  
 1575- Destination: 7 Distance: 7  
 1576- Path: 7 <- 1  
 1577-  
 1578- Destination: 8 Distance: 12  
 1579- Path: 8 <- 3 <- 7 <- 1  
 1580-  
 1581- Destination: 9 Distance: 20  
 1582- Path: 9 <- 12 <- 7 <- 1  
 1583-  
 1584- Destination: 10 Distance: 9  
 1585- Path: 10 <- 5 <- 1  
 1586-  
 1587- Destination: 11 Distance: 28  
 1588- Path: 11 <- 8 <- 3 <- 7 <- 1  
 1589-  
 1590- Destination: 12 Distance: 15  
 1591- Path: 12 <- 7 <- 1  
 1592-  
 1593- Destination: 13 Distance: 26  
 1594- Path: 13 <- 6 <- 2 <- 7 <- 1  
 1595-  
 1596- Source: 2  
 1597- -----  
 1598- Destination: 1 Distance: 20  
 1599- Path: 1 <- 7 <- 2  
 1600-

1601- Destination: 2 Distance: 0  
1602- Path: <- 2  
1603-  
1604- Destination: 3 Distance: 14  
1605- Path: 3 <- 7 <- 2  
1606-  
1607- Destination: 4 Distance: 21  
1608- Path: 4 <- 6 <- 2  
1609-  
1610- Destination: 5 Distance: 26  
1611- Path: 5 <- 1 <- 7 <- 2  
1612-  
1613- Destination: 6 Distance: 2  
1614- Path: 6 <- 2  
1615-  
1616- Destination: 7 Distance: 13  
1617- Path: 7 <- 2  
1618-  
1619- Destination: 8 Distance: 18  
1620- Path: 8 <- 3 <- 7 <- 2  
1621-  
1622- Destination: 9 Distance: 13  
1623- Path: 9 <- 13 <- 6 <- 2  
1624-  
1625- Destination: 10 Distance: 29  
1626- Path: 10 <- 5 <- 1 <- 7 <- 2  
1627-  
1628- Destination: 11 Distance: 27  
1629- Path: 11 <- 6 <- 2  
1630-  
1631- Destination: 12 Distance: 18  
1632- Path: 12 <- 9 <- 13 <- 6 <- 2  
1633-  
1634- Destination: 13 Distance: 6  
1635- Path: 13 <- 6 <- 2  
1636-  
1637- Source: 3

1638- -----  
1639- Destination: 1 Distance: 8  
1640- Path: 1 <- 7 <- 3  
1641-  
1642- Destination: 2 Distance: 14  
1643- Path: 2 <- 7 <- 3  
1644-  
1645- Destination: 3 Distance: 0  
1646- Path: <- 3  
1647-  
1648- Destination: 4 Distance: 35  
1649- Path: 4 <- 6 <- 2 <- 7 <- 3  
1650-  
1651- Destination: 5 Distance: 14  
1652- Path: 5 <- 1 <- 7 <- 3  
1653-  
1654- Destination: 6 Distance: 16  
1655- Path: 6 <- 2 <- 7 <- 3  
1656-  
1657- Destination: 7 Distance: 1  
1658- Path: 7 <- 3  
1659-  
1660- Destination: 8 Distance: 4  
1661- Path: 8 <- 3  
1662-  
1663- Destination: 9 Distance: 13  
1664- Path: 9 <- 12 <- 3  
1665-  
1666- Destination: 10 Distance: 17  
1667- Path: 10 <- 5 <- 1 <- 7 <- 3  
1668-  
1669- Destination: 11 Distance: 20  
1670- Path: 11 <- 8 <- 3  
1671-  
1672- Destination: 12 Distance: 8  
1673- Path: 12 <- 3  
1674-



1675- Destination: 13 Distance: 20  
 1676- Path: 13 <- 6 <- 2 <- 7 <- 3  
 1677-  
 1678- Source: 4  
 1679- -----  
 1680- Destination: 1 Distance: 41  
 1681- Path: 1 <- 7 <- 2 <- 6 <- 4  
 1682-  
 1683- Destination: 2 Distance: 21  
 1684- Path: 2 <- 6 <- 4  
 1685-  
 1686- Destination: 3 Distance: 35  
 1687- Path: 3 <- 7 <- 2 <- 6 <- 4  
 1688-  
 1689- Destination: 4 Distance: 0  
 1690- Path: <- 4  
 1691-  
 1692- Destination: 5 Distance: 47  
 1693- Path: 5 <- 1 <- 7 <- 2 <- 6 <- 4  
 1694-  
 1695- Destination: 6 Distance: 19  
 1696- Path: 6 <- 4  
 1697-  
 1698- Destination: 7 Distance: 34  
 1699- Path: 7 <- 2 <- 6 <- 4  
 1700-  
 1701- Destination: 8 Distance: 36  
 1702- Path: 8 <- 6 <- 4  
 1703-  
 1704- Destination: 9 Distance: 30  
 1705- Path: 9 <- 13 <- 6 <- 4  
 1706-  
 1707- Destination: 10 Distance: 47  
 1708- Path: 10 <- 12 <- 9 <- 13 <- 6 <- 4  
 1709-  
 1710- Destination: 11 Distance: 44  
 1711- Path: 11 <- 6 <- 4

1712-  
1713- Destination: 12 Distance: 35  
1714- Path: 12 <- 9 <- 13 <- 6 <- 4  
1715-  
1716- Destination: 13 Distance: 23  
1717- Path: 13 <- 6 <- 4  
1718-  
1719- Source: 5  
1720- -----  
1721- Destination: 1 Distance: 6  
1722- Path: 1 <- 5  
1723-  
1724- Destination: 2 Distance: 26  
1725- Path: 2 <- 7 <- 1 <- 5  
1726-  
1727- Destination: 3 Distance: 14  
1728- Path: 3 <- 7 <- 1 <- 5  
1729-  
1730- Destination: 4 Distance: 47  
1731- Path: 4 <- 6 <- 2 <- 7 <- 1 <- 5  
1732-  
1733- Destination: 5 Distance: 0  
1734- Path: <- 5  
1735-  
1736- Destination: 6 Distance: 28  
1737- Path: 6 <- 2 <- 7 <- 1 <- 5  
1738-  
1739- Destination: 7 Distance: 13  
1740- Path: 7 <- 1 <- 5  
1741-  
1742- Destination: 8 Distance: 18  
1743- Path: 8 <- 3 <- 7 <- 1 <- 5  
1744-  
1745- Destination: 9 Distance: 20  
1746- Path: 9 <- 12 <- 10 <- 5  
1747-  
1748- Destination: 10 Distance: 3

1749- Path: 10 <- 5  
1750-  
1751- Destination: 11 Distance: 34  
1752- Path: 11 <- 8 <- 3 <- 7 <- 1 <- 5  
1753-  
1754- Destination: 12 Distance: 15  
1755- Path: 12 <- 10 <- 5  
1756-  
1757- Destination: 13 Distance: 27  
1758- Path: 13 <- 9 <- 12 <- 10 <- 5  
1759-  
1760- Source: 6  
1761- -----  
1762- Destination: 1 Distance: 22  
1763- Path: 1 <- 7 <- 2 <- 6  
1764-  
1765- Destination: 2 Distance: 2  
1766- Path: 2 <- 6  
1767-  
1768- Destination: 3 Distance: 16  
1769- Path: 3 <- 7 <- 2 <- 6  
1770-  
1771- Destination: 4 Distance: 19  
1772- Path: 4 <- 6  
1773-  
1774- Destination: 5 Distance: 28  
1775- Path: 5 <- 1 <- 7 <- 2 <- 6  
1776-  
1777- Destination: 6 Distance: 0  
1778- Path: <- 6  
1779-  
1780- Destination: 7 Distance: 15  
1781- Path: 7 <- 2 <- 6  
1782-  
1783- Destination: 8 Distance: 17  
1784- Path: 8 <- 6  
1785-

1786- Destination: 9 Distance: 11  
1787- Path: 9 <- 13 <- 6  
1788-  
1789- Destination: 10 Distance: 28  
1790- Path: 10 <- 12 <- 9 <- 13 <- 6  
1791-  
1792- Destination: 11 Distance: 25  
1793- Path: 11 <- 6  
1794-  
1795- Destination: 12 Distance: 16  
1796- Path: 12 <- 9 <- 13 <- 6  
1797-  
1798- Destination: 13 Distance: 4  
1799- Path: 13 <- 6  
1800-  
1801- Source: 7  
1802- -----  
1803- Destination: 1 Distance: 7  
1804- Path: 1 <- 7  
1805-  
1806- Destination: 2 Distance: 13  
1807- Path: 2 <- 7  
1808-  
1809- Destination: 3 Distance: 1  
1810- Path: 3 <- 7  
1811-  
1812- Destination: 4 Distance: 34  
1813- Path: 4 <- 6 <- 2 <- 7  
1814-  
1815- Destination: 5 Distance: 13  
1816- Path: 5 <- 1 <- 7  
1817-  
1818- Destination: 6 Distance: 15  
1819- Path: 6 <- 2 <- 7  
1820-  
1821- Destination: 7 Distance: 0  
1822- Path: <- 7

1823-  
1824- Destination: 8 Distance: 5  
1825- Path: 8 <- 3 <- 7  
1826-  
1827- Destination: 9 Distance: 13  
1828- Path: 9 <- 12 <- 7  
1829-  
1830- Destination: 10 Distance: 16  
1831- Path: 10 <- 5 <- 1 <- 7  
1832-  
1833- Destination: 11 Distance: 21  
1834- Path: 11 <- 8 <- 3 <- 7  
1835-  
1836- Destination: 12 Distance: 8  
1837- Path: 12 <- 7  
1838-  
1839- Destination: 13 Distance: 19  
1840- Path: 13 <- 6 <- 2 <- 7  
1841-  
1842- Source: 8  
1843- -----  
1844- Destination: 1 Distance: 12  
1845- Path: 1 <- 7 <- 3 <- 8  
1846-  
1847- Destination: 2 Distance: 18  
1848- Path: 2 <- 7 <- 3 <- 8  
1849-  
1850- Destination: 3 Distance: 4  
1851- Path: 3 <- 8  
1852-  
1853- Destination: 4 Distance: 36  
1854- Path: 4 <- 6 <- 8  
1855-  
1856- Destination: 5 Distance: 18  
1857- Path: 5 <- 1 <- 7 <- 3 <- 8  
1858-  
1859- Destination: 6 Distance: 17

1860- Path: 6 <- 8  
 1861-  
 1862- Destination: 7 Distance: 5  
 1863- Path: 7 <- 3 <- 8  
 1864-  
 1865- Destination: 8 Distance: 0  
 1866- Path: <- 8  
 1867-  
 1868- Destination: 9 Distance: 17  
 1869- Path: 9 <- 12 <- 3 <- 8  
 1870-  
 1871- Destination: 10 Distance: 21  
 1872- Path: 10 <- 5 <- 1 <- 7 <- 3 <- 8  
 1873-  
 1874- Destination: 11 Distance: 16  
 1875- Path: 11 <- 8  
 1876-  
 1877- Destination: 12 Distance: 12  
 1878- Path: 12 <- 3 <- 8  
 1879-  
 1880- Destination: 13 Distance: 21  
 1881- Path: 13 <- 6 <- 8  
 1882-  
 1883- Source: 9  
 1884- -----  
 1885- Destination: 1 Distance: 20  
 1886- Path: 1 <- 7 <- 12 <- 9  
 1887-  
 1888- Destination: 2 Distance: 13  
 1889- Path: 2 <- 6 <- 13 <- 9  
 1890-  
 1891- Destination: 3 Distance: 13  
 1892- Path: 3 <- 12 <- 9  
 1893-  
 1894- Destination: 4 Distance: 30  
 1895- Path: 4 <- 6 <- 13 <- 9  
 1896-

1897- Destination: 5 Distance: 20  
 1898- Path: 5 <- 10 <- 12 <- 9  
 1899-  
 1900- Destination: 6 Distance: 11  
 1901- Path: 6 <- 13 <- 9  
 1902-  
 1903- Destination: 7 Distance: 13  
 1904- Path: 7 <- 12 <- 9  
 1905-  
 1906- Destination: 8 Distance: 17  
 1907- Path: 8 <- 3 <- 12 <- 9  
 1908-  
 1909- Destination: 9 Distance: 0  
 1910- Path: <- 9  
 1911-  
 1912- Destination: 10 Distance: 17  
 1913- Path: 10 <- 12 <- 9  
 1914-  
 1915- Destination: 11 Distance: 33  
 1916- Path: 11 <- 8 <- 3 <- 12 <- 9  
 1917-  
 1918- Destination: 12 Distance: 5  
 1919- Path: 12 <- 9  
 1920-  
 1921- Destination: 13 Distance: 7  
 1922- Path: 13 <- 9  
 1923-  
 1924- Source: 10  
 1925- -----  
 1926- Destination: 1 Distance: 9  
 1927- Path: 1 <- 5 <- 10  
 1928-  
 1929- Destination: 2 Distance: 29  
 1930- Path: 2 <- 7 <- 1 <- 5 <- 10  
 1931-  
 1932- Destination: 3 Distance: 17  
 1933- Path: 3 <- 7 <- 1 <- 5 <- 10

1934-  
 1935- Destination: 4 Distance: 47  
 1936- Path: 4 <- 6 <- 13 <- 9 <- 12 <- 10  
 1937-  
 1938- Destination: 5 Distance: 3  
 1939- Path: 5 <- 10  
 1940-  
 1941- Destination: 6 Distance: 28  
 1942- Path: 6 <- 13 <- 9 <- 12 <- 10  
 1943-  
 1944- Destination: 7 Distance: 16  
 1945- Path: 7 <- 1 <- 5 <- 10  
 1946-  
 1947- Destination: 8 Distance: 21  
 1948- Path: 8 <- 3 <- 7 <- 1 <- 5 <- 10  
 1949-  
 1950- Destination: 9 Distance: 17  
 1951- Path: 9 <- 12 <- 10  
 1952-  
 1953- Destination: 10 Distance: 0  
 1954- Path: <- 10  
 1955-  
 1956- Destination: 11 Distance: 37  
 1957- Path: 11 <- 8 <- 3 <- 7 <- 1 <- 5 <- 10  
 1958-  
 1959- Destination: 12 Distance: 12  
 1960- Path: 12 <- 10  
 1961-  
 1962- Destination: 13 Distance: 24  
 1963- Path: 13 <- 9 <- 12 <- 10  
 1964-  
 1965- Source: 11  
 1966- -----  
 1967- Destination: 1 Distance: 28  
 1968- Path: 1 <- 7 <- 3 <- 8 <- 11  
 1969-  
 1970- Destination: 2 Distance: 27



1971- Path: 2 <- 6 <- 11  
 1972-  
 1973- Destination: 3 Distance: 20  
 1974- Path: 3 <- 8 <- 11  
 1975-  
 1976- Destination: 4 Distance: 44  
 1977- Path: 4 <- 6 <- 11  
 1978-  
 1979- Destination: 5 Distance: 34  
 1980- Path: 5 <- 1 <- 7 <- 3 <- 8 <- 11  
 1981-  
 1982- Destination: 6 Distance: 25  
 1983- Path: 6 <- 11  
 1984-  
 1985- Destination: 7 Distance: 21  
 1986- Path: 7 <- 3 <- 8 <- 11  
 1987-  
 1988- Destination: 8 Distance: 16  
 1989- Path: 8 <- 11  
 1990-  
 1991- Destination: 9 Distance: 33  
 1992- Path: 9 <- 12 <- 3 <- 8 <- 11  
 1993-  
 1994- Destination: 10 Distance: 37  
 1995- Path: 10 <- 5 <- 1 <- 7 <- 3 <- 8 <- 11  
 1996-  
 1997- Destination: 11 Distance: 0  
 1998- Path: <- 11  
 1999-  
 2000- Destination: 12 Distance: 28  
 2001- Path: 12 <- 3 <- 8 <- 11  
 2002-  
 2003- Destination: 13 Distance: 29  
 2004- Path: 13 <- 6 <- 11  
 2005-  
 2006- Source: 12  
 2007- -----

2008- Destination: 1 Distance: 15  
2009- Path: 1 <- 7 <- 12  
2010-  
2011- Destination: 2 Distance: 18  
2012- Path: 2 <- 6 <- 13 <- 9 <- 12  
2013-  
2014- Destination: 3 Distance: 8  
2015- Path: 3 <- 12  
2016-  
2017- Destination: 4 Distance: 35  
2018- Path: 4 <- 6 <- 13 <- 9 <- 12  
2019-  
2020- Destination: 5 Distance: 15  
2021- Path: 5 <- 10 <- 12  
2022-  
2023- Destination: 6 Distance: 16  
2024- Path: 6 <- 13 <- 9 <- 12  
2025-  
2026- Destination: 7 Distance: 8  
2027- Path: 7 <- 12  
2028-  
2029- Destination: 8 Distance: 12  
2030- Path: 8 <- 3 <- 12  
2031-  
2032- Destination: 9 Distance: 5  
2033- Path: 9 <- 12  
2034-  
2035- Destination: 10 Distance: 12  
2036- Path: 10 <- 12  
2037-  
2038- Destination: 11 Distance: 28  
2039- Path: 11 <- 8 <- 3 <- 12  
2040-  
2041- Destination: 12 Distance: 0  
2042- Path: <- 12  
2043-  
2044- Destination: 13 Distance: 12

2045- Path: 13 <- 9 <- 12  
2046-  
2047- Source: 13  
2048- -----  
2049- Destination: 1 Distance: 26  
2050- Path: 1 <- 7 <- 2 <- 6 <- 13  
2051-  
2052- Destination: 2 Distance: 6  
2053- Path: 2 <- 6 <- 13  
2054-  
2055- Destination: 3 Distance: 20  
2056- Path: 3 <- 12 <- 9 <- 13  
2057-  
2058- Destination: 4 Distance: 23  
2059- Path: 4 <- 6 <- 13  
2060-  
2061- Destination: 5 Distance: 27  
2062- Path: 5 <- 10 <- 12 <- 9 <- 13  
2063-  
2064- Destination: 6 Distance: 4  
2065- Path: 6 <- 13  
2066-  
2067- Destination: 7 Distance: 19  
2068- Path: 7 <- 2 <- 6 <- 13  
2069-  
2070- Destination: 8 Distance: 21  
2071- Path: 8 <- 6 <- 13  
2072-  
2073- Destination: 9 Distance: 7  
2074- Path: 9 <- 13  
2075-  
2076- Destination: 10 Distance: 24  
2077- Path: 10 <- 12 <- 9 <- 13  
2078-  
2079- Destination: 11 Distance: 29  
2080- Path: 11 <- 6 <- 13  
2081-

2082- Destination: 12 Distance: 12

2083- Path: 12 <- 9 <- 13

2084-

2085- Destination: 13 Distance: 0

2086- Path: <- 13

2087-

dvrp takes 2227643 ns

```
Iter 11 Src:9
-----
Vertex    Distance from Source
1          20
2          13
3          13
4          30
5          20
6          11
7          13
8          17
9          0
10         17
11         33
12         5
13         7

Final iter, Src:9
-----
Destination: 1 Distance: 20
Path: 1 <- 7 <- 12 <- 9

Destination: 2 Distance: 13
Path: 2 <- 6 <- 13 <- 9

Destination: 3 Distance: 13
Path: 3 <- 12 <- 9

Destination: 4 Distance: 30
Path: 4 <- 6 <- 13 <- 9

Destination: 5 Distance: 20
Path: 5 <- 10 <- 12 <- 9

Destination: 6 Distance: 11
Path: 6 <- 13 <- 9

Destination: 7 Distance: 13
Path: 7 <- 12 <- 9
```

2088- Iter 11 Src:9  
 2089- -----  
 2090- Vertex Distance from Source  
 2091- 1 20  
 2092- 2 13  
 2093- 3 13  
 2094- 4 30  
 2095- 5 20  
 2096- 6 11  
 2097- 7 13  
 2098- 8 17  
 2099- 9 0  
 2100- 10 17  
 2101- 11 33  
 2102- 12 5  
 2103- 13 7  
 2104-  
 2105- Final iter, Src:9  
 2106- -----  
 2107- Destination: 1 Distance: 20  
 2108- Path: 1 <- 7 <- 12 <- 9  
 2109-  
 2110- Destination: 2 Distance: 13  
 2111- Path: 2 <- 6 <- 13 <- 9  
 2112-  
 2113- Destination: 3 Distance: 13  
 2114- Path: 3 <- 12 <- 9  
 2115-  
 2116- Destination: 4 Distance: 30  
 2117- Path: 4 <- 6 <- 13 <- 9  
 2118-  
 2119- Destination: 5 Distance: 20  
 2120- Path: 5 <- 10 <- 12 <- 9  
 2121-  
 2122- Destination: 6 Distance: 11  
 2123- Path: 6 <- 13 <- 9  
 2124-

2125- Destination: 7 Distance: 13  
 2126- Path: 7 <- 12 <- 9  
 2127-  
 2128- Destination: 8 Distance: 17  
 2129- Path: 8 <- 3 <- 12 <- 9  
 2130-  
 2131- Destination: 9 Distance: 0  
 2132- Path: <- 9  
 2133-  
 2134- Destination: 10 Distance: 17  
 2135- Path: 10 <- 12 <- 9  
 2136-  
 2137- Destination: 11 Distance: 33  
 2138- Path: 11 <- 8 <- 3 <- 12 <- 9  
 2139-  
 2140- Destination: 12 Distance: 5  
 2141- Path: 12 <- 9  
 2142-  
 2143- Destination: 13 Distance: 7  
 2144- Path: 13 <- 9  
 2145-  
 2146- Iter 0 Src:10  
 2147- -----  
 2148- Vertex Distance from Source  
 2149- 1 99999  
 2150- 2 99999  
 2151- 3 99999  
 2152- 4 99999  
 2153- 5 3  
 2154- 6 99999  
 2155- 7 99999  
 2156- 8 99999  
 2157- 9 99999  
 2158- 10 0  
 2159- 11 99999  
 2160- 12 12  
 2161- 13 99999

```

2162-
2163- Iter 1 Src:10
2164- -----
2165- Vertex  Distance from Source
2166- 1          9
2167- 2          99999
2168- 3          99999
2169- 4          99999
2170- 5          3
2171- 6          99999
2172- 7          99999
2173- 8          99999
2174- 9          99999
2175- 10         0
2176- 11         99999
2177- 12         12
2178- 13         99999
2179-
2180- Iter 2 Src:10
2181- -----
2182- Vertex  Distance from Source
2183- 1          9
2184- 2          99999
2185- 3          99999
2186- 4          99999
2187- 5          3
2188- 6          99999
2189- 7          16
2190- 8          99999
2191- 9          99999
2192- 10         0
2193- 11         99999
2194- 12         12
2195- 13         99999
2196-
2197- Iter 3 Src:10
2198- -----

```

**2199- Vertex Distance from Source**

2200- 1	9
2201- 2	99999
2202- 3	20
2203- 4	99999
2204- 5	3
2205- 6	99999
2206- 7	16
2207- 8	99999
2208- 9	17
2209- 10	0
2210- 11	99999
2211- 12	12
2212- 13	99999

2213-

2214- Iter 4 Src:10

2215- -----

**2216- Vertex Distance from Source**

2217- 1	9
2218- 2	29
2219- 3	17
2220- 4	99999
2221- 5	3
2222- 6	99999
2223- 7	16
2224- 8	99999
2225- 9	17
2226- 10	0
2227- 11	99999
2228- 12	12
2229- 13	99999

2230-

2231- Iter 5 Src:10

2232- -----

**2233- Vertex Distance from Source**

2234- 1	9
2235- 2	29



2236-	3	17
2237-	4	99999
2238-	5	3
2239-	6	99999
2240-	7	16
2241-	8	99999
2242-	9	17
2243-	10	0
2244-	11	99999
2245-	12	12
2246-	13	24
2247-		
2248-	Iter 6 Src:10	
2249-	-----	
2250-	Vertex	Distance from Source
2251-	1	9
2252-	2	29
2253-	3	17
2254-	4	99999
2255-	5	3
2256-	6	99999
2257-	7	16
2258-	8	21
2259-	9	17
2260-	10	0
2261-	11	99999
2262-	12	12
2263-	13	24
2264-		
2265-	Iter 7 Src:10	
2266-	-----	
2267-	Vertex	Distance from Source
2268-	1	9
2269-	2	29
2270-	3	17
2271-	4	99999
2272-	5	3

```

2273- 6      38
2274- 7      16
2275- 8      21
2276- 9      17
2277- 10     0
2278- 11     37
2279- 12     12
2280- 13     24
2281-
2282- Iter 8 Src:10
2283- -----
2284- Vertex  Distance from Source
2285- 1        9
2286- 2       29
2287- 3       17
2288- 4     99999
2289- 5        3
2290- 6       28
2291- 7       16
2292- 8       21
2293- 9       17
2294- 10      0
2295- 11      37
2296- 12      12
2297- 13      24
2298-
2299- Iter 9 Src:10
2300- -----
2301- Vertex  Distance from Source
2302- 1        9
2303- 2       29
2304- 3       17
2305- 4       47
2306- 5        3
2307- 6       28
2308- 7       16
2309- 8       21

```

2310-	9	17
2311-	10	0
2312-	11	37
2313-	12	12
2314-	13	24
2315-		
2316-	Iter 10 Src:10	
2317-	-----	
2318-	Vertex	Distance from Source
2319-	1	9
2320-	2	29
2321-	3	17
2322-	4	47
2323-	5	3
2324-	6	28
2325-	7	16
2326-	8	21
2327-	9	17
2328-	10	0
2329-	11	37
2330-	12	12
2331-	13	24
2332-		
2333-	Iter 11 Src:10	
2334-	-----	
2335-	Vertex	Distance from Source
2336-	1	9
2337-	2	29
2338-	3	17
2339-	4	47
2340-	5	3
2341-	6	28
2342-	7	16
2343-	8	21
2344-	9	17
2345-	10	0
2346-	11	37

2347- 12            12  
 2348- 13            24  
 2349-  
 2350- Final iter, Src:10  
 2351- -----  
 2352- Destination: 1 Distance: 9  
 2353- Path: 1 <- 5 <- 10  
 2354-  
 2355- Destination: 2 Distance: 29  
 2356- Path: 2 <- 7 <- 1 <- 5 <- 10  
 2357-  
 2358- Destination: 3 Distance: 17  
 2359- Path: 3 <- 7 <- 1 <- 5 <- 10  
 2360-  
 2361- Destination: 4 Distance: 47  
 2362- Path: 4 <- 6 <- 13 <- 9 <- 12 <- 10  
 2363-  
 2364- Destination: 5 Distance: 3  
 2365- Path: 5 <- 10  
 2366-  
 2367- Destination: 6 Distance: 28  
 2368- Path: 6 <- 13 <- 9 <- 12 <- 10  
 2369-  
 2370- Destination: 7 Distance: 16  
 2371- Path: 7 <- 1 <- 5 <- 10  
 2372-  
 2373- Destination: 8 Distance: 21  
 2374- Path: 8 <- 3 <- 7 <- 1 <- 5 <- 10  
 2375-  
 2376- Destination: 9 Distance: 17  
 2377- Path: 9 <- 12 <- 10  
 2378-  
 2379- Destination: 10 Distance: 0  
 2380- Path: <- 10  
 2381-  
 2382- Destination: 11 Distance: 37  
 2383- Path: 11 <- 8 <- 3 <- 7 <- 1 <- 5 <- 10

2384-  
 2385- Destination: 12 Distance: 12  
 2386- Path: 12 <- 10  
 2387-  
 2388- Destination: 13 Distance: 24  
 2389- Path: 13 <- 9 <- 12 <- 10  
 2390-  
 2391- Iter 0 Src:11  
 2392- -----  
 2393- Vertex Distance from Source  
 2394- 1 99999  
 2395- 2 99999  
 2396- 3 99999  
 2397- 4 99999  
 2398- 5 99999  
 2399- 6 25  
 2400- 7 99999  
 2401- 8 16  
 2402- 9 99999  
 2403- 10 99999  
 2404- 11 0  
 2405- 12 99999  
 2406- 13 99999  
 2407-  
 2408- Iter 1 Src:11  
 2409- -----  
 2410- Vertex Distance from Source  
 2411- 1 99999  
 2412- 2 99999  
 2413- 3 20  
 2414- 4 99999  
 2415- 5 99999  
 2416- 6 25  
 2417- 7 99999  
 2418- 8 16  
 2419- 9 99999  
 2420- 10 99999

```

2421- 11      0
2422- 12      99999
2423- 13      99999
2424-
2425- Iter 2 Src:11
2426- -----
2427- Vertex  Distance from Source
2428- 1        99999
2429- 2        99999
2430- 3        20
2431- 4        99999
2432- 5        99999
2433- 6        25
2434- 7        21
2435- 8        16
2436- 9        99999
2437- 10       99999
2438- 11       0
2439- 12       28
2440- 13       99999
2441-
2442- Iter 3 Src:11
2443- -----
2444- Vertex  Distance from Source
2445- 1        28
2446- 2        34
2447- 3        20
2448- 4        99999
2449- 5        99999
2450- 6        25
2451- 7        21
2452- 8        16
2453- 9        99999
2454- 10       99999
2455- 11       0
2456- 12       28
2457- 13       99999

```

2458-

2459- Iter 4 Src:11

2460- -----

2461- Vertex	Distance from Source
2462- 1	28
2463- 2	27
2464- 3	20
2465- 4	44
2466- 5	99999
2467- 6	25
2468- 7	21
2469- 8	16
2470- 9	99999
2471- 10	99999
2472- 11	0
2473- 12	28
2474- 13	29

2475-

2476- Iter 5 Src:11

2477- -----

2478- Vertex	Distance from Source
2479- 1	28
2480- 2	27
2481- 3	20
2482- 4	44
2483- 5	99999
2484- 6	25
2485- 7	21
2486- 8	16
2487- 9	99999
2488- 10	99999
2489- 11	0
2490- 12	28
2491- 13	29

2492-

2493- Iter 6 Src:11

2494- -----

**2495- Vertex Distance from Source**

<b>2496- 1</b>	<b>28</b>
<b>2497- 2</b>	<b>27</b>
<b>2498- 3</b>	<b>20</b>
<b>2499- 4</b>	<b>44</b>
<b>2500- 5</b>	<b>99999</b>
<b>2501- 6</b>	<b>25</b>
<b>2502- 7</b>	<b>21</b>
<b>2503- 8</b>	<b>16</b>
<b>2504- 9</b>	<b>33</b>
<b>2505- 10</b>	<b>40</b>
<b>2506- 11</b>	<b>0</b>
<b>2507- 12</b>	<b>28</b>
<b>2508- 13</b>	<b>29</b>

**2509-**

**2510- Iter 7 Src:11**

**2511- -----**

**2512- Vertex Distance from Source**

<b>2513- 1</b>	<b>28</b>
<b>2514- 2</b>	<b>27</b>
<b>2515- 3</b>	<b>20</b>
<b>2516- 4</b>	<b>44</b>
<b>2517- 5</b>	<b>34</b>
<b>2518- 6</b>	<b>25</b>
<b>2519- 7</b>	<b>21</b>
<b>2520- 8</b>	<b>16</b>
<b>2521- 9</b>	<b>33</b>
<b>2522- 10</b>	<b>40</b>
<b>2523- 11</b>	<b>0</b>
<b>2524- 12</b>	<b>28</b>
<b>2525- 13</b>	<b>29</b>

**2526-**

**2527- Iter 8 Src:11**

**2528- -----**

**2529- Vertex Distance from Source**

<b>2530- 1</b>	<b>28</b>
<b>2531- 2</b>	<b>27</b>



2532-	3	20
2533-	4	44
2534-	5	34
2535-	6	25
2536-	7	21
2537-	8	16
2538-	9	33
2539-	10	40
2540-	11	0
2541-	12	28
2542-	13	29
2543-		
2544-	Iter 9 Src:11	
2545-	-----	
2546-	Vertex	Distance from Source
2547-	1	28
2548-	2	27
2549-	3	20
2550-	4	44
2551-	5	34
2552-	6	25
2553-	7	21
2554-	8	16
2555-	9	33
2556-	10	40
2557-	11	0
2558-	12	28
2559-	13	29
2560-		
2561-	Iter 10 Src:11	
2562-	-----	
2563-	Vertex	Distance from Source
2564-	1	28
2565-	2	27
2566-	3	20
2567-	4	44
2568-	5	34

```

2569- 6          25
2570- 7          21
2571- 8          16
2572- 9          33
2573- 10         37
2574- 11         0
2575- 12         28
2576- 13         29
2577-
2578- Iter 11 Src:11
2579- -----
2580- Vertex  Distance from Source
2581- 1          28
2582- 2          27
2583- 3          20
2584- 4          44
2585- 5          34
2586- 6          25
2587- 7          21
2588- 8          16
2589- 9          33
2590- 10         37
2591- 11         0
2592- 12         28
2593- 13         29
2594-
2595- Final iter, Src:11
2596- -----
2597- Destination: 1 Distance: 28
2598- Path: 1 <- 7 <- 3 <- 8 <- 11
2599-
2600- Destination: 2 Distance: 27
2601- Path: 2 <- 6 <- 11
2602-
2603- Destination: 3 Distance: 20
2604- Path: 3 <- 8 <- 11
2605-

```

2606- Destination: 4 Distance: 44  
 2607- Path: 4 <- 6 <- 11  
 2608-  
 2609- Destination: 5 Distance: 34  
 2610- Path: 5 <- 1 <- 7 <- 3 <- 8 <- 11  
 2611-  
 2612- Destination: 6 Distance: 25  
 2613- Path: 6 <- 11  
 2614-  
 2615- Destination: 7 Distance: 21  
 2616- Path: 7 <- 3 <- 8 <- 11  
 2617-  
 2618- Destination: 8 Distance: 16  
 2619- Path: 8 <- 11  
 2620-  
 2621- Destination: 9 Distance: 33  
 2622- Path: 9 <- 12 <- 3 <- 8 <- 11  
 2623-  
 2624- Destination: 10 Distance: 37  
 2625- Path: 10 <- 5 <- 1 <- 7 <- 3 <- 8 <- 11  
 2626-  
 2627- Destination: 11 Distance: 0  
 2628- Path: <- 11  
 2629-  
 2630- Destination: 12 Distance: 28  
 2631- Path: 12 <- 3 <- 8 <- 11  
 2632-  
 2633- Destination: 13 Distance: 29  
 2634- Path: 13 <- 6 <- 11  
 2635-  
 2636- Iter 0 Src:12  
 2637- -----  
 2638- Vertex Distance from Source  
 2639- 1 99999  
 2640- 2 99999  
 2641- 3 8  
 2642- 4 99999

2643-	5	99999
2644-	6	99999
2645-	7	8
2646-	8	99999
2647-	9	5
2648-	10	12
2649-	11	99999
2650-	12	0
2651-	13	99999
2652-		
2653-	Iter 1 Src:12	
2654-	-----	
2655-	Vertex	Distance from Source
2656-	1	99999
2657-	2	99999
2658-	3	8
2659-	4	99999
2660-	5	99999
2661-	6	99999
2662-	7	8
2663-	8	99999
2664-	9	5
2665-	10	12
2666-	11	99999
2667-	12	0
2668-	13	12
2669-		
2670-	Iter 2 Src:12	
2671-	-----	
2672-	Vertex	Distance from Source
2673-	1	15
2674-	2	21
2675-	3	8
2676-	4	99999
2677-	5	99999
2678-	6	99999
2679-	7	8

2680-	8	99999
2681-	9	5
2682-	10	12
2683-	11	99999
2684-	12	0
2685-	13	12
2686-		
2687-	Iter 3 Src:12	
2688-	-----	
2689-	Vertex	Distance from Source
2690-	1	15
2691-	2	21
2692-	3	8
2693-	4	99999
2694-	5	99999
2695-	6	99999
2696-	7	8
2697-	8	12
2698-	9	5
2699-	10	12
2700-	11	99999
2701-	12	0
2702-	13	12
2703-		
2704-	Iter 4 Src:12	
2705-	-----	
2706-	Vertex	Distance from Source
2707-	1	15
2708-	2	21
2709-	3	8
2710-	4	99999
2711-	5	99999
2712-	6	16
2713-	7	8
2714-	8	12
2715-	9	5
2716-	10	12

```

2717- 11      99999
2718- 12      0
2719- 13      12
2720-
2721- Iter 5 Src:12
2722- -----
2723- Vertex  Distance from Source
2724- 1      15
2725- 2      21
2726- 3      8
2727- 4      99999
2728- 5      15
2729- 6      16
2730- 7      8
2731- 8      12
2732- 9      5
2733- 10     12
2734- 11     99999
2735- 12     0
2736- 13     12
2737-
2738- Iter 6 Src:12
2739- -----
2740- Vertex  Distance from Source
2741- 1      15
2742- 2      21
2743- 3      8
2744- 4      99999
2745- 5      15
2746- 6      16
2747- 7      8
2748- 8      12
2749- 9      5
2750- 10     12
2751- 11     28
2752- 12     0
2753- 13     12

```

```

2754-
2755- Iter 7 Src:12
2756- -----
2757- Vertex  Distance from Source
2758- 1          15
2759- 2          21
2760- 3           8
2761- 4         99999
2762- 5          15
2763- 6          16
2764- 7           8
2765- 8          12
2766- 9           5
2767- 10         12
2768- 11         28
2769- 12          0
2770- 13         12
2771-
2772- Iter 8 Src:12
2773- -----
2774- Vertex  Distance from Source
2775- 1          15
2776- 2          21
2777- 3           8
2778- 4         99999
2779- 5          15
2780- 6          16
2781- 7           8
2782- 8          12
2783- 9           5
2784- 10         12
2785- 11         28
2786- 12          0
2787- 13         12
2788-
2789- Iter 9 Src:12
2790- -----

```

**2791- Vertex Distance from Source**

**2792- 1 15**

**2793- 2 18**

**2794- 3 8**

**2795- 4 35**

**2796- 5 15**

**2797- 6 16**

**2798- 7 8**

**2799- 8 12**

**2800- 9 5**

**2801- 10 12**

**2802- 11 28**

**2803- 12 0**

**2804- 13 12**

**2805-**

**2806- Iter 10 Src:12**

**2807- -----**

**2808- Vertex Distance from Source**

**2809- 1 15**

**2810- 2 18**

**2811- 3 8**

**2812- 4 35**

**2813- 5 15**

**2814- 6 16**

**2815- 7 8**

**2816- 8 12**

**2817- 9 5**

**2818- 10 12**

**2819- 11 28**

**2820- 12 0**

**2821- 13 12**

**2822-**

**2823- Iter 11 Src:12**

**2824- -----**

**2825- Vertex Distance from Source**

**2826- 1 15**

**2827- 2 18**



2828- 3            8  
 2829- 4            35  
 2830- 5            15  
 2831- 6            16  
 2832- 7            8  
 2833- 8            12  
 2834- 9            5  
 2835- 10           12  
 2836- 11           28  
 2837- 12           0  
 2838- 13           12  
 2839-  
 2840- Final iter, Src:12  
 2841- -----  
 2842- Destination: 1 Distance: 15  
 2843- Path: 1 <- 7 <- 12  
 2844-  
 2845- Destination: 2 Distance: 18  
 2846- Path: 2 <- 6 <- 13 <- 9 <- 12  
 2847-  
 2848- Destination: 3 Distance: 8  
 2849- Path: 3 <- 12  
 2850-  
 2851- Destination: 4 Distance: 35  
 2852- Path: 4 <- 6 <- 13 <- 9 <- 12  
 2853-  
 2854- Destination: 5 Distance: 15  
 2855- Path: 5 <- 10 <- 12  
 2856-  
 2857- Destination: 6 Distance: 16  
 2858- Path: 6 <- 13 <- 9 <- 12  
 2859-  
 2860- Destination: 7 Distance: 8  
 2861- Path: 7 <- 12  
 2862-  
 2863- Destination: 8 Distance: 12  
 2864- Path: 8 <- 3 <- 12

2865-  
 2866- Destination: 9 Distance: 5  
 2867- Path: 9 <- 12  
 2868-  
 2869- Destination: 10 Distance: 12  
 2870- Path: 10 <- 12  
 2871-  
 2872- Destination: 11 Distance: 28  
 2873- Path: 11 <- 8 <- 3 <- 12  
 2874-  
 2875- Destination: 12 Distance: 0  
 2876- Path: <- 12  
 2877-  
 2878- Destination: 13 Distance: 12  
 2879- Path: 13 <- 9 <- 12  
 2880-  
 2881- Iter 0 Src:13  
 2882- -----  
 2883- Vertex Distance from Source  
 2884- 1 99999  
 2885- 2 99999  
 2886- 3 99999  
 2887- 4 99999  
 2888- 5 99999  
 2889- 6 4  
 2890- 7 99999  
 2891- 8 99999  
 2892- 9 7  
 2893- 10 99999  
 2894- 11 99999  
 2895- 12 99999  
 2896- 13 0  
 2897-  
 2898- Iter 1 Src:13  
 2899- -----  
 2900- Vertex Distance from Source  
 2901- 1 99999

2902-	2	6
2903-	3	99999
2904-	4	23
2905-	5	99999
2906-	6	4
2907-	7	99999
2908-	8	21
2909-	9	7
2910-	10	99999
2911-	11	29
2912-	12	99999
2913-	13	0
2914-		
2915-	Iter 2 Src:13	
2916-	-----	
2917-	Vertex	Distance from Source
2918-	1	99999
2919-	2	6
2920-	3	99999
2921-	4	23
2922-	5	99999
2923-	6	4
2924-	7	19
2925-	8	21
2926-	9	7
2927-	10	99999
2928-	11	29
2929-	12	99999
2930-	13	0
2931-		
2932-	Iter 3 Src:13	
2933-	-----	
2934-	Vertex	Distance from Source
2935-	1	99999
2936-	2	6
2937-	3	99999
2938-	4	23

2939-	5	99999
2940-	6	4
2941-	7	19
2942-	8	21
2943-	9	7
2944-	10	99999
2945-	11	29
2946-	12	12
2947-	13	0
2948-		
2949-	Iter 4 Src:13	
2950-	-----	
2951-	Vertex	Distance from Source
2952-	1	99999
2953-	2	6
2954-	3	20
2955-	4	23
2956-	5	99999
2957-	6	4
2958-	7	19
2959-	8	21
2960-	9	7
2961-	10	24
2962-	11	29
2963-	12	12
2964-	13	0
2965-		
2966-	Iter 5 Src:13	
2967-	-----	
2968-	Vertex	Distance from Source
2969-	1	26
2970-	2	6
2971-	3	20
2972-	4	23
2973-	5	99999
2974-	6	4
2975-	7	19

```

2976- 8      21
2977- 9      7
2978- 10     24
2979- 11     29
2980- 12     12
2981- 13      0
2982-
2983- Iter 6 Src:13
2984- -----
2985- Vertex  Distance from Source
2986- 1      26
2987- 2      6
2988- 3     20
2989- 4     23
2990- 5    99999
2991- 6      4
2992- 7     19
2993- 8     21
2994- 9      7
2995- 10     24
2996- 11     29
2997- 12     12
2998- 13      0
2999-
3000- Iter 7 Src:13
3001- -----
3002- Vertex  Distance from Source
3003- 1      26
3004- 2      6
3005- 3     20
3006- 4     23
3007- 5    99999
3008- 6      4
3009- 7     19
3010- 8     21
3011- 9      7
3012- 10     24

```

```

3013- 11      29
3014- 12      12
3015- 13      0
3016-
3017- Iter 8 Src:13
3018- -----
3019- Vertex  Distance from Source
3020- 1        26
3021- 2        6
3022- 3       20
3023- 4       23
3024- 5     99999
3025- 6        4
3026- 7       19
3027- 8       21
3028- 9        7
3029- 10      24
3030- 11      29
3031- 12      12
3032- 13      0
3033-
3034- Iter 9 Src:13
3035- -----
3036- Vertex  Distance from Source
3037- 1        26
3038- 2        6
3039- 3       20
3040- 4       23
3041- 5       27
3042- 6        4
3043- 7       19
3044- 8       21
3045- 9        7
3046- 10      24
3047- 11      29
3048- 12      12
3049- 13      0

```

```

3050-
3051- Iter 10 Src:13
3052- -----
3053- Vertex  Distance from Source
3054- 1          26
3055- 2          6
3056- 3          20
3057- 4          23
3058- 5          27
3059- 6          4
3060- 7          19
3061- 8          21
3062- 9          7
3063- 10         24
3064- 11         29
3065- 12         12
3066- 13         0
3067-
3068- Iter 11 Src:13
3069- -----
3070- Vertex  Distance from Source
3071- 1          26
3072- 2          6
3073- 3          20
3074- 4          23
3075- 5          27
3076- 6          4
3077- 7          19
3078- 8          21
3079- 9          7
3080- 10         24
3081- 11         29
3082- 12         12
3083- 13         0
3084-
3085- Final iter, Src:13
3086- -----

```

3087- Destination: 1 Distance: 26  
3088- Path: 1 <- 7 <- 2 <- 6 <- 13  
3089-  
3090- Destination: 2 Distance: 6  
3091- Path: 2 <- 6 <- 13  
3092-  
3093- Destination: 3 Distance: 20  
3094- Path: 3 <- 12 <- 9 <- 13  
3095-  
3096- Destination: 4 Distance: 23  
3097- Path: 4 <- 6 <- 13  
3098-  
3099- Destination: 5 Distance: 27  
3100- Path: 5 <- 10 <- 12 <- 9 <- 13  
3101-  
3102- Destination: 6 Distance: 4  
3103- Path: 6 <- 13  
3104-  
3105- Destination: 7 Distance: 19  
3106- Path: 7 <- 2 <- 6 <- 13  
3107-  
3108- Destination: 8 Distance: 21  
3109- Path: 8 <- 6 <- 13  
3110-  
3111- Destination: 9 Distance: 7  
3112- Path: 9 <- 13  
3113-  
3114- Destination: 10 Distance: 24  
3115- Path: 10 <- 12 <- 9 <- 13  
3116-  
3117- Destination: 11 Distance: 29  
3118- Path: 11 <- 6 <- 13  
3119-  
3120- Destination: 12 Distance: 12  
3121- Path: 12 <- 9 <- 13  
3122-  
3123- Destination: 13 Distance: 0



**3124- Path: <- 13**

**3125-**

**lsrp takes 10028159 ns**